TITLE: VACUUM CLEANER AND AIR PUMP STRUCTURE

BACKGROUND OF THE INVENTION

(a) Technical Field of the Invention

The present invention relates to a vacuum cleaner and air pump, and in particular, to air vacuuming and pumping device which provides high-pressure air and vacuum function.

(b) Description of the Prior Art

Conventional portable vacuum cleaner provides a single function as vacuuming and is mainly used as a supplementary accessory to automobiles, facilitating the cleaning of dust particles within the automobiles. FIG. 1 is a conventional vacuum cleaner A1 comprising a blower A2 which can rapidly suck air from the environment and at the same time, dust particles, debris, etc are sucked and accumulated in a dust vacuum box A3. In order to protect the motor within the blower A2, a filtering seat A4 is engaged at the suction end of the blower A2 to filter out the suction of debris etc, so that the debris will not enter the blower A2 to damage the vacuum cleaner.

The suction of the vacuum cleaner A1 is by way of the blower A2.and therefore air discharge from the blower A2 has to be performed simultaneously. However, the air discharging for the small portable vacuum cleaner A1 is released via the air dissipation holes and the rear end of the

vacuum cleaner.

As for air pump, the air supplying is the opposite to that of the vacuum cleaner. The blades rotates at high speed and air is sucked in from the air and is ejected out at a high speed. The air pump is used to pump air to air-inflated toys, bed, etc. Similarly, the air supply device or the air pump provides only one function. Accordingly, it is an object of the present invention to provide a vacuum cleaner cum air pump structure that mitigates the above drawbacks.

SUMMARY OF THE INVENTION

Accordingly, it is an aspect of the present invention to provide an improved structure of an air supply pump and a vacuum cleaner having an air supply pump, a dust vacuum box, a vacuum tube and an air ejection tube, characterized in that the air supply pump includes an air supply head and an air inlet head which can respectively connect with the air ejection tube and the dust vacuum box; and the vacuum box is formed from two halves hollow cylindrical body, wherein in one half of the hollow cylindrical body, an outer edge is extended and the center section of the outer edge is connected to a connection head which can be connected to the air inlet head of the air supply pump, and the dust vacuum box is provided with a concentric connection head having a bottom section engaged with an engageable filter seat, and the bottom section of the filter seat is mounted with a filter; the other half of the hollow cylindrical body has an air hole mounted with a soft blocking plate which can effectively restrict the collected dust or debris in the dust vacuum box from discharging out from the air inlet hole; the vacuum tube is connected to the air inlet hole of the vacuum box and includes a suction shaft, and the ejection tube is connected to the air supply connecting head of the air supply pump and includes a narrow ejection head.

Yet another object of the present invention is to provide a vacuum cleaner

cum air pump structure, wherein only one air supply pump is employed to provide vacuum cleaning function.

Still another object of the present invention is to provide a vacuum cleaner cum air pump structure, wherein during vacuuming, the device is functioned as a vacuum cleaner.

Yet still another object of the present invention is to provide a vacuum cleaner cum air pump structure, wherein the dust vacuum box can be rapidly unloaded to discharged the collected dust for disposal.

The foregoing object and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic view showing the interior structure of a conventional vacuum cleaner.

FIG. 2 is a perspective view showing a preferred embodiment in accordance with the present invention.

FIG. 3 is a perspective exploded view in accordance with the present invention.

FIG. 4 is a perspective view of the dust vacuum box of the present invention.

FIG. 5 is a sectional view showing the air vacuuming via the dust vacuum box of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The following descriptions are of exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

Referring to FIGS. 2 and 3, there is shown a vacuum cleaner cum air pump structure including an air supplying pump 1, a dust vacuum box 2, a vacuum tube 3 and an ejection tube 4, wherein the air supplying pump 1 includes an air supply head 11 and an air inlet head 12, and the air supply head 11 and the air inlet head 12 are protruded tubes which can respectively connect with the ejection tube 4 and the dust vacuum box 2.

As shown in FIGS. 4 and 5, the dust vacuum box 2 is cylindrical shape that is formed from two halves of a hollow cylindrical body 21, 22. One half of the hollow cylindrical body 21 is protruded out with a concentric tube connecting head 211 which can be connected with the air inlet head 12. The outer edge of the hollow cylindrical body 21 is extended with an edge section 212 so that when the collection box 2 is connected to the air supply pump 1, it

forms an enclosed body.

Further, the interior of the connecting head 211 is engaged wit ha filter seat 213, and the bottom section of the filter seat 213 is mounted with a filter 214 so as to block those objects that have been sucked from entering into the supply pump 1 to affect the operation of the air supply pump.

Next, the air hole 222 at the other half of the cylindrical hollow body 22 is mounted with a soft blocking plate 221. The blocking plate 221 can effective stop the sucked objects within the dust vacuum box 2 to discharge out from the air hole 222. As shown in FIG. 3, the air hole 222 of the dust vacuum box 2 is connected to a vacuum tube 3 and the other end head of the tube 3 has a suction shaft 31 for vacuum. Further, the air supply head 11 can be mounted with an air ejection tube 4, and the other end head of the tube 4 is provided with a narrow ejector 41 specifically for the air supply pump 1.

In operation, the air supply pump 1 is triggered and the air supply head 11 can generate a high-pressure air. Thus, by means of the ejection tube 4 and the ejection head 41 a high pressurized air is ejected. With respect to the air inlet head 12 of the air supply pump 1, it is a high efficient air suction and in combination with the dust vacuum box 2, the vacuum tube 3 and the suction shaft 31, the device generates an efficient vacuum operation. In practise, the device is operated as one-way air supply and one way vacuuming, as shown in

FIG. 3.

It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.